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EXAMINER

ROSSI, JESSICA

ART UNIT PAPER NUMBER

1733

DATE MAILED: 03/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/768,024

Applicant(s)

HARCOURT, ROBERT

Examiner

Jessica L. Rossi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/30/03, Amendment.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3,5-9,11-31,33-37 and 43-48 is/are pending in the application.
- 4a) Of the above claim(s) 5,6,8,10,14-16,21-24,31,37 and 43-47 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25-30 is/are allowed.
- 6) ☒ Claim(s) 3,9,11,12,17 and 33-36 is/are rejected.
- 7) ☒ Claim(s) 13 and 18-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/29/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Response to Amendment

1. This action is in response to the amendment dated 12/30/03. Claims 3, 5-9, 11-31, 33-37, and 43-48 are pending. Claims 5-6, 8, 10, 14-16, 21-24, 31, 37, and 43-47 are withdrawn from further consideration.

Claim Objections

2. Claims 9 and 35 are objected to because of the following informalities:

Regarding claim 9, the examiner would like to point out that this version of the claim is not the version that was previously presented in the amendment filed 5/20/03. In the previous version of the claim, "includes" was deleted before "by supplying" in line 2 thereby removing a claim objection that was set forth in the office action mailed prior to the 5/20/03 amendment. Therefore, it is suggested to amend claim 9 once again to remove this claim objection.

Regarding claim 35, "and," should be replaced by --and-- before "an infrared heater" in line 3.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claim 3 **stands** rejected under 35 U.S.C. 102(b) as being anticipated by Voss (US 3859408; of record), as set forth in paragraph 5 of the previous office action dated 7/8/03.

With respect to claim 3, Voss is directed to making a hose. The reference teaches pressurizing an extruded rubber hose 10/12 (column 2, lines 30-35; column 3, lines 9-11),

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trapping air inside the hose by sealing engagement of the hose with a floating mandrel 24 and pinch rollers 30 (Figure 1; column 3, lines 5-7), and vulcanizing the hose from the outside to the inside using a non-contact energy source 20; **note energy source 20 contacts an unnumbered body comprising concavity 18 but energy source 20 does not contact the hose 10** (Figure 1; column 3, lines 23-27).

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. Claims 3 and 11-12 **stand** rejected under 35 U.S.C. 103(a) as being unpatentable over Merck et al. (US 3038523; of record) in view of Dougherty (US 4488921; of record), as set forth in paragraph 7 of the previous office action.

With respect to claim 3, Merck is directed to making a hose. The reference teaches extruding an interior lining 17 of the hose over a mandrel 16 (Figure 1; column 2, lines 50-51), which terminates after extrusion of the cover at 105 (Figure 5; column 5, lines 10-12), pressurizing the mandrel-less hose by trapping pressurized fluid inside the hose by sealing engagement of the hose with the end of the mandrel and pinch rollers 113/114 located downstream of the mandrel (Figure 1a; column 5, lines 2-27 and 47-48), and vulcanizing the hose from the outside to the inside using a heated curing tube 115 having a jacket through which heated oil circulates such that the **hose is never contacted by the heated oil, which is the energy source** (note that tube 115 is identical to tube 33; column 5, lines 45-47; column 3, lines 9-12). The reference is silent as to pressurizing the inside of the hose by trapping air inside the hose.

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It is known in the art to make a hose by trapping air or fluid inside the hose during vulcanization by sealing both ends of the hose, as taught by Dougherty (column 8, lines 59-62). One reading the Merck reference as a whole would have appreciated that the means for pressurizing the hose is not critical to the invention and therefore would have been motivated to use air as an alternative to fluid because such is known in the art, as taught by Dougherty, where only the expected results of maintaining the shape of the hose during vulcanization would have been achieved.

With respect to claim 11, all the limitations were addressed above with respect to claim 1 except the hose being drawn through the pinch rollers by a haul-off and vulcanizing the hose using a non-contact heater located between the mandrel and pinch rollers.

As for the haul-off, Merck teaches the hose being drawn through the pinch rollers 113/114 by haul-off 104 (Figure 1a; column 4, lines 65-66).

As for the location of the heater 115, Merck teaches it being located after the mandrel 16 and before the pinch rollers 113/114 (Figure 1a; column 5, lines 2-3).

As for vulcanizing the hose, Merck teaches using a non-contact energy source (**heated oil within the sleeve is energy source that does not contact the hose**) but not a non-contact heater since the heated sleeve contacts the hose. It is known in the art to vulcanize a hose having pressurized fluid or air trapped within by passing the hose through chamber 45 in which various alternative methods, including hot liquid and microwaves, are used to vulcanize the hose, as taught by Dougherty (column 8, lines 59-63), wherein the skilled artisan would have appreciated that microwaves constitute a non-contact heater.

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One reading the Merck reference as a whole would have appreciated that the means for vulcanizing the hose is not critical to the invention and therefore would have been motivated to vulcanize the hose of Merck by passing the same through a microwave chamber as an alternative to the heated tube 115 because such is known in the art, as taught by Dougherty, wherein only the expected results of vulcanizing the hose would have been achieved. **Please note that the present invention discloses a microwave heater as a non-contact heater (p. 11, lines 4-7).**

Regarding claim 12, selection of a vulcanization temperature would have been within purview of the skilled artisan at the time the invention was made depending on the material of the hose. However, Merck teaches vulcanizing between 340-380°F, wherein 340-350°F falls within the claimed range.

7. Claims 9 and 33-35 **stand** rejected under 35 U.S.C. 103(a) as being unpatentable over Merck et al. in view of Dougherty, Hopkins (US 4121962; of record), and the collective teachings of Gattrugeri (US 3904144; of record) and Kunz et al. (US 6296054; of record) as set forth in paragraph 8 of the previous office action.

With respect to claim 9, all the limitations were addressed above with respect to claims 3 and 11 except a check valve being located in the mandrel.

Merck in view of Dougherty teaches the air being supplied into the interior of hose 17, as it exits the mandrel 16, through a tube 71 located within the mandrel and terminating at 105 along with the mandrel (Figure 5; column 5, lines 5-12 and 22-24).

It is known in the art to trap pressurized air inside a hose during vulcanization thereof where air is supplied from a source 33 equipped with a valve 34 for regulating the flow of the air, as taught by Hopkins (Figure 3; column 3, lines 22-30 and 38-42). It is also known to regulate

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the flow of pressurized air through a mandrel by means of a check valve located within the mandrel, as taught by the collective teachings of Gattrugeri (abstract) and Kunz (column 9, lines 1-8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to regulate the flow of the pressurized air of Merck in view of Dougherty by placing a check valve within the tube 71, which is located within the mandrel 16, because it is known to use a valve to regulate the flow of pressurized air within the interior of a hose during vulcanization, as taught by Hopkins, and because it is known to use a check valve located within a mandrel to regulate the flow of pressurized air therethrough, as taught by the collective teachings of Gattrugeri and Kunz, where this would prevent too much or too little air from being supplied to the interior of the hose thereby preventing damage thereto.

With respect to claim 33, all the limitations were addressed above with respect to claim 9.

Regarding claim 34, all the limitations were addressed above with respect to 9.

Regarding claim 35, all the limitations were addressed above with respect to claim 11 (Dougherty teaches heating by microwaves – radiant heating).

8. Claim 36 **stands** rejected under 35 U.S.C. 103(a) as being unpatentable over Merck et al., Dougherty, Hopkins, Gattrugeri, and Kunz et al. as applied to claim 33 above, and further in view of Satzler (US 4490316; of record), as set forth in paragraph 9 of the previous office action.

Regarding claim 36, Merck is silent as to controlling the diameter of the hose. It would have been obvious to control the diameter of the hose by means of the check valve because this would prevent too much or too little air from being supplied to the interior of the hose thereby preventing damage thereto. However, it would also have been obvious to the skilled artisan to

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control the diameter of the hose by controlling the speed of extrusion because such is known in the art, as taught by Satzler (Figure 1; column 1, lines 9-10; column 2, lines 1-11 and 55-60), where this allows the final diameter of the hose to be predetermined.

9. Claim 17 **stands** rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (US 4326805; of record) in view of Merck et al. and Dougherty, as set forth in paragraph 10 of the previous office action.

With respect to claim 17, Tanaka is directed to making a hose. The reference teaches extruding rubber resin (column 8, lines 36-38 and 39-40) onto, into, and through a woven fabric 4 (Figure 3; column 3, lines 20-25; column 6, lines 26-27; column 8, lines 50-52) located on a mandrel 25 (Figure 10; note Figure 10 is embodiment that is variation of that depicted in Figure 4 when resin not extruded; column 5, lines 14-15), which only has a length long enough to complete extrusion (column 6, lines 43-46), passing the mandrel-less hose through a cooling bath 71 to solidify the resin (column 8, lines 54-55), and guiding the hose by means of rollers to a take-up winding machine (column 8, lines 18-25). The reference is silent as to pressurizing the hose with a gas, sealing the inside of the hose with respect to the mandrel, pulling the hose through a non-contact heater to vulcanize it, and pinching and sealing the vulcanized hose as it leaves the heater.

As set forth above in paragraph 8, Merck teaches extruding an elastomeric interior lining 17 (column 1, lines 12-13) of a hose over a mandrel 16, which terminates after extrusion at 105, pressurizing the mandrel-less hose by passing pressurized fluid through tube 71 located within the mandrel and trapping the fluid inside the hose by sealing engagement of the hose with the end of the mandrel and pinch rollers 113/114 located downstream of the mandrel, and

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vulcanizing the hose from the outside to the inside using a heated curing tube 115, wherein the skilled artisan would have been motivated to use pressurized air in place of fluid and a non-contact microwave heating chamber 45 in place of tube 115, as taught by Dougherty, for the reasons set forth above in paragraph 6.

Although Tanaka teaches cooling the extruded resin to solidify the same and form the finished hose, the skilled artisan would have appreciated that processing steps subsequent to extrusion, such as heating and/or cooling, are largely dependent on the type of material used to make the hose. Therefore, since Tanaka is mainly concerned with formation of the woven reinforcement and not the type of resins extruded onto it nor the subsequent processing steps used to make the finished hose, and the type of resins used are not critical to the invention such that Tanaka teaches using a variety of resins including rubber (column 8, lines 32-37), which is elastomeric, the skilled artisan would have been motivated to make the hose of Tanaka using an elastomeric material that requires vulcanization, as taught by Merck, and therefore would have been motivated to perform the processing steps of Merck in view of Dougherty following the extruding step of Tanaka because such allows for continuous vulcanization of an elastomeric hose while maintaining the shape thereof.

Allowable Subject Matter

10. Claims 25-30 are allowed for the reasons set forth in paragraph 11 of the previous office action.

11. Claims 13 and 18-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, as set forth in paragraph 12 of the previous office action.

Response to Arguments

12. Applicant's arguments filed 12/30/03 have been fully considered but they are not persuasive.

13. On pages 9-10 of the arguments, Applicants argue that energy source 20 of Voss '408 heats the unnumbered part of the concavity 18, which contacts and heats the hose 10, and therefore the reference fails to teach a non-contact energy source.

As set forth in paragraph 4 above, the present claim language states vulcanizing using a non-contact energy source and Voss teaches doing just that. Specifically, Voss teaches vulcanizing using a non-contact energy source 20, which does not contact the hose 10. The examiner appreciates that the energy source 20 heats the unnumbered part of the concavity 18, which does contact and heat the hose, but energy source 20 never contacts the hose.

14. On page 10 of the arguments, Applicants argue that floating plug 24 of Voss is not a mandrel.

While the examiner appreciates that the reference refers to 24 as a "plug", this does not mean that it is not a mandrel. In fact, the reference specifically states that the "plug" is used to support and apply pressure to the hose to press the same against the concavity 18 (column 3, lines 20-21). Therefore, since mandrels are also used for such purposes, especially in the hose vulcanization art, the skilled artisan reading the reference as a whole would have appreciated that the "plug" of Voss is a mandrel. Please note that just because a reference does not use the EXACT terminology as the claimed invention does not mean the reference fails to teach or suggest that which is being claimed.

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15. On page 10 of the arguments, Applicants argue that the skilled artisan would not be motivated to use a microwave heater as an alternative to the heated tube 115 of Merck '523 because the heated tube 115 supports the "fluid mandrel" within the hose and without the heated tube a sag would occur.

The examiner respectfully points out that Dougherty '921 teaches passing the hose through a chamber 45 in which microwave energy is applied to the hose (Figure 2; column 8, lines 51-66). When combining the teachings of Merck and Dougherty, as the examiner did in paragraph 6 above, the skilled artisan would have appreciated that the entire chamber 45, and not just the microwave energy within, would be used as an alternative to the heated tube 115 of Merck such that the chamber 45 would now serve to support the "fluid mandrel" within the hose of Merck.

16. On page 11 of the arguments, Applicants argue that claim 36 is patentable because the check valve of the present invention does not control the diameter of the hose rather it controls the direction of airflow.

The examiner respectfully points out that this argument is not commensurate with the scope of the claimed invention.

Conclusion

17. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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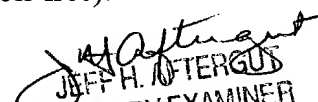
the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jessica L. Rossi** whose telephone number is **571-272-1223**. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard D. Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jessica L. Rossi
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